

## **REMARKS**

Claims 1-44 have been canceled. Claims 45-132 are added. The new claims are supported by the specification and original claims 1-44, and highlight the feature that the presently claimed methods are directed to controlled differentiation, in contrast to spontaneous differentiation.

More specifically, with respect to claim 45, support for the term "non-spontaneous and controlled differentiation" is found in the bridging paragraph of pages 8-9, where the specification defines the term "inducing differentiation of a stem cell" as including "causing a stem cell to develop.....as a result of a direct or intentional influence...". This definition indicates that the differentiation is controlled and therefore is unlikely to be spontaneous.

With respect to the term "mesoderm" recited in claims 45-46, support is found throughout the specification, including, e.g., exemplifications of mesoderm cells such as cardiomyocytes, vascular endothelial cells and skeletal muscle cells, on page 4, lines 32-33 and page 10, lines 1-7.

Support for claim 47, especially the term "influencing factor", is found on page 8, lines 32 to 34 of the specification. Influencing factors include extracellular factors produced from embryonic cells (page 13 lines 8 to 10 of the specification).

Support for claim 48 is found in original claim 1 and in the specification, page 8 and 13.

Support for claims 49-50 is found in original claim 4.

Support for claims 51-55 is found in original claims 5-9.

Support for claims 56-58 is found in original claim 2.

Support for claim 59 is found in original claim 3.

Support for claims 60-70 is found in original claims 10-20.

Support for claims 71-87 is found throughout the specification, e.g., page 10, lines 1-7 and pages 23-38.

Support for claims 88-91 is found in original claims 21-24.

Support for claims 92-101 is found in original claims 25-29 and in the specification, e.g., page 11, lines 1-13 ("END-2 cell line"); page 10, line 29 ("mouse embryo E7.5"); and page 10, lines 26.

Support for claims 102-108 is found in original claims 30-31.

Support for claims 109-112 is found in original claims 32-33; page 17, line 25 and page 18, line 25 of the specification.

Support for claims 113-116 is found in original claims 34-35, for example.

Support for claims 117-120 is found, e.g., in original claims 36-37.

Support for claims 121-124 is found, e.g., in original claims 38-39.

Support for claims 125-127 is found in original claims 40-42.

Support for claims 128-132 is found in original claim 44, for example.

Applicant respectfully submits that the foregoing amendments do not introduce new matter. It is respectfully submitted that the present case is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,



Xiaochun Zhu  
Registration No. 56,311

Scully, Scott, Murphy & Presser  
400 Garden City Plaza-Ste 300  
Garden City, New York 11530  
(516) 742-4343  
XZ:ab